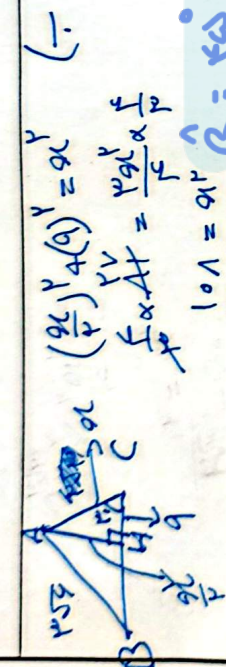


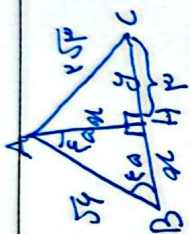
$$\left(\frac{\sqrt{2}}{2} + \left(-\frac{\sqrt{2}}{2}\right)\right) \times \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) \rightarrow \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right)^2 = \frac{2}{4} - \frac{2}{4} = \frac{0}{4} = 0$$

$$\frac{1+1}{2+1} = \frac{2}{3} = \frac{1}{\frac{3}{2}}$$

(۵۱)



$$\frac{1}{\sin \alpha} = \frac{1}{\sin \beta} \Rightarrow \sin \alpha = \sin \beta \Rightarrow \alpha = \beta = 30^\circ$$

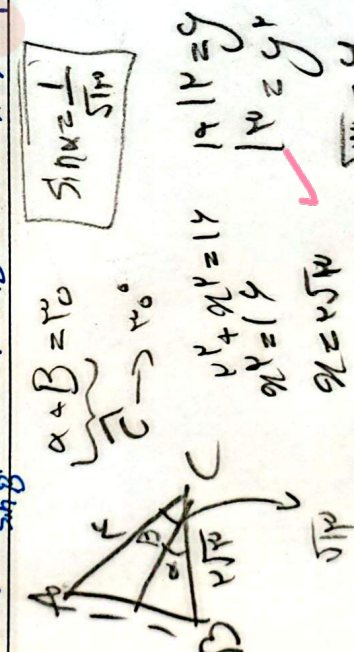


$$\alpha = \beta = 30^\circ$$

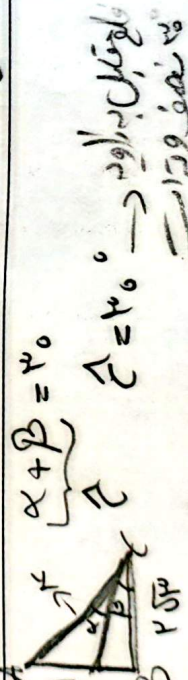
(الف)

$$\alpha = 30^\circ$$

$$\beta = 30^\circ$$



$$\sin \alpha = \frac{1}{\sqrt{2}}$$



$$\sin \beta = \frac{1}{\sqrt{2}} \Rightarrow \beta = 45^\circ$$

$$\frac{1}{\sqrt{2}} \sin \beta \times \sqrt{2} = \frac{1}{\sqrt{2}} \sin \beta \times \sqrt{2} = 1$$

۵

(۲)

$$12 \times 5 \times \sqrt{5} = 4\sqrt{5}$$

$$3 \times 4 \times \frac{1}{\sqrt{5}} = 4\sqrt{5}$$

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$$\frac{-1+1}{-1-1} = \frac{-1}{-2} = \frac{1}{2} = 0.5$$

$$1.5 + 0.5x = 2$$

$$\text{if } y=0 \rightarrow 0.5x = -1.5 \Rightarrow x = -3$$

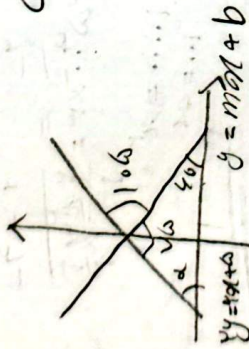
$$\frac{1}{1 + \frac{1}{2}} = \frac{2}{2+1} = \frac{2}{3}$$

2

$$y = 0.5x + \frac{1}{2} \rightarrow \alpha = 45^\circ$$

$$\tan 45^\circ = 1$$

$$b_1 = \frac{1}{2}$$



1, 1, 1

$$f(x) = \cos(x+x) + \sin\left(\frac{\pi}{2} - x\right) + \tan\left(\frac{\pi}{2} + x\right)$$

$$f(x) = -\cos x + \cos x - \cot x$$

$$f\left(\frac{\pi}{4}\right) = \cot \frac{\pi}{4} \rightarrow \sqrt{5}$$

$$f(x) = \cot x$$

5, 1, 1

$$\frac{\cos + \sin}{-(\cos + \sin)} = -1$$

$$\frac{(6 - \frac{1}{2})\sin + (6 + \frac{1}{2})\cos}{\cos(x+x) - (\cos(x+x))\sin}$$

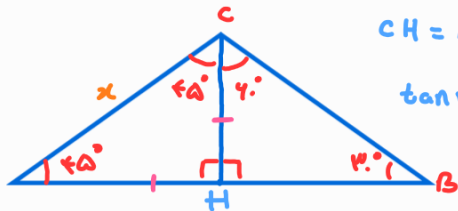
$$\frac{\cos + \sin}{-\cos - \sin}$$

2

الف) $(\sin 135^\circ + \sin 45^\circ)(\cos 135^\circ - \cos 45^\circ)$

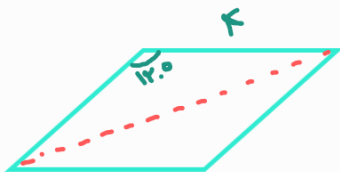
$$\left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right)\left(\frac{\sqrt{2}}{2} - (-\frac{\sqrt{2}}{2})\right) = \left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{2}}{2}\right)^2 = \frac{1}{2} - \frac{1}{2} = \boxed{-\frac{1}{4}}$$

$$\hookrightarrow \frac{1 + \tan^2 135^\circ}{\cos^2 135^\circ + \cos^2 45^\circ} = \frac{1 + 3\left(\frac{\sqrt{2}}{2}\right)^2}{\cos^2\left(\frac{\sqrt{2}}{2}\right)^2 + \cos^2\left(-\frac{\sqrt{2}}{2}\right)^2} = \frac{1 + 1}{1 + 1} = \boxed{\frac{1}{2}}$$



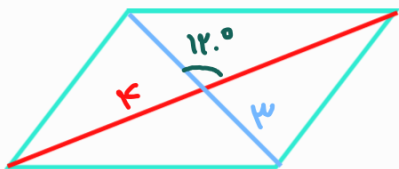
$CH = AH \rightarrow CH^2 + AH^2 = x^2 \rightarrow 2CH^2 = x^2 \rightarrow CH = \frac{x\sqrt{2}}{2}$
 $\tan 45^\circ = \frac{CH}{BH} \rightarrow BH = \frac{\frac{x\sqrt{2}}{2}}{\frac{1}{\sqrt{2}}} = \frac{x\sqrt{4}}{2} = \frac{x\sqrt{2}}{2} \rightarrow AB = x\left(\frac{\sqrt{4}}{2} + \frac{\sqrt{2}}{2}\right)$

$$\frac{AB}{AC} = \frac{x\left(\frac{\sqrt{4}}{2} + \frac{\sqrt{2}}{2}\right)}{x} = \boxed{\frac{\sqrt{4} + \sqrt{2}}{2}}$$

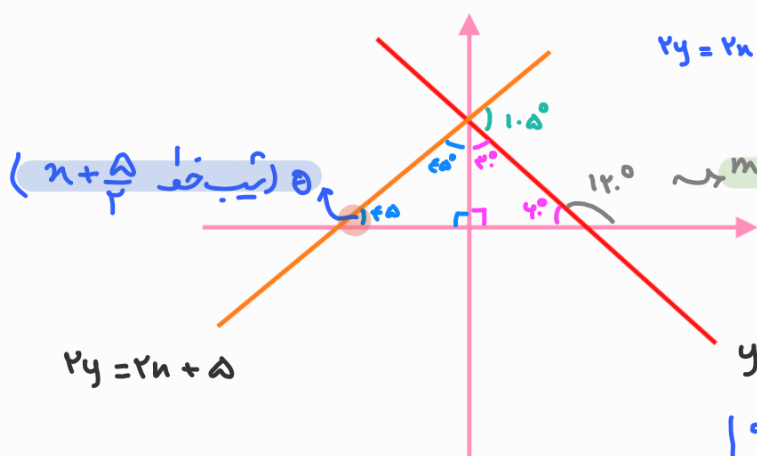


$$S = \frac{1}{2} \times 1 \times 3 \times \sin 120^\circ = 4\sqrt{3}$$

از دو مثلث هم‌بزرگت بساز! 120°



$$S = \frac{1}{2} \times 1 \times 3 \times \sin 120^\circ = 3\sqrt{3}$$



$2y = 2x + 5 \rightarrow m = 1 \rightarrow \tan \theta = 1 \rightarrow \theta = 45^\circ$
 (صبق سطر شده است)

$y = mx + b \rightarrow m = \tan 120^\circ = -\sqrt{3}$

$\left| \begin{matrix} 1 \\ 0 \end{matrix} \right| \rightarrow \frac{a}{r} = -\sqrt{3}(\cdot) + b \rightarrow b = \frac{a}{r}$

$$mb = -\sqrt{3} \times \frac{a}{r} = -\frac{a\sqrt{3}}{r}$$

$$\underbrace{(\pi + \pi)}_{-C \cdot \sin} + \underbrace{\sin\left(\frac{\pi}{4} - \pi\right)}_{C \sin} - \tan\left(\frac{\pi}{4} + \pi\right) = \cot \pi$$

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$$\varphi_n = \cot \pi \rightarrow \varphi\left(\frac{\omega \pi}{4}\right) = \cot\left(\frac{\omega \pi}{4}\right) = -\sqrt{3}$$